



Apartment Fire Safety Management Guide

This guide provides information pertaining to best practices, fire code requirements, and fire safety in apartment buildings and complexes.



Fire Safety Management for Apartments

The Arvada Fire Protection District (AFPD) produced this guide for apartment managers and maintenance personnel with these goals:

- Guide you in making informed decisions about your smoke and carbon monoxide alarms, as well as your fire
 protection features, to better protect your property and the lives of your residents.
- 2. Support your success during compliance inspections of your property.
- 3. Urge you to develop, communicate, and practice an evacuation plan.

Within this guide, you will find helpful information, fire code requirements, compliance inspection information, and many other topics that will help you maintain a safe community. Included is information pertaining to:

- Smoke and carbon monoxide alarm information
- Valet trash services
- Fire protection system requirements
- Compliance inspection process
- Evacuation & fire safety plans & drills

WHOSE JOB IS IT TO PREVENT FIRES

At the AFPD, we truly believe that *Fire is Everyone's Fight*. Our firefighters may be on the front lines of a fire attack, but as property managers and maintenance leaders you are in the best position to prevent fires on your property before they even start. Think of yourselves as the offense while we are the defense! We are a team, and there can never be a victory without each other. We both have very important jobs. *You Have the Power* to fight fires and save lives every single day on your property through written policies for your residents, personal conversations when they sign or renew their lease, special events to help educate your residents, staff training, evacuation planning, and ongoing enforcement. We are always here for you if you ever have any questions about effectively preventing fires.

FIRE STATISTICS IN RESIDENTIAL OCCUPANCIES

It is important for property and facility maintenance to understand the risks you and your residents face. It is that understanding that will aid you in determining the best plans and practices for your building(s). The following statistics come from national data relating to fires in the residential setting.

- Three out of five fire deaths happen in residences where the smoke alarms didn't work or there weren't enough alarms.
- When smoke alarms don't work, it is usually because batteries are missing, disconnected, or dead.
- Over half of residentia fire deaths occur at night when most people are asleep. Many of these start in the
- Most fire deaths happen in the first five minutes after a fire starts.



- Only a third of Americans have practived a fire escapte plan.
- Structure fires in the U.S. caused \$9.8 billion in property damage, nearly 3,000 people died in these fires and another 13,500 were injured.
- Cooking related fires caused \$853 million in property damage. Two out of every five fires start in the kitchen.
- Heating equipment is the second leading cause of residentia fires, fire deaths, and fire injuries, the top factor being failure to clean.
- Home fires caused by cigarettes and other smaoking materials result in \$509 million in property damage a
 year, on average and kill nearly 600 people/year.
- Residential fires from electrical failure or malfunction caused \$1.5 billion in property damage. About half of these fire involved electrical wiring or lighting equipment.

SMOKE AND CARBON MONOXIDE ALARMS MAINTENANCE PLAN

All apartment facilities should at a minimum have a smoke alarm in each bedroom, a smoke alarm in the common area outside the bedrooms and a carbon monoxide (CO) alarm. Smoke alarms should be completely replaced every 10 years, after which point, they are more likely to fail. The following are a variety of plans to achieve this important protection.

GOOD	BETTER	BEST 👍
Basic Smoke Alarms + Basic CO Alarm	Low-Maintenance Smoke Alarms + Basic Combo Smoke/CO Alarm	Low-Maintenance Combo Alarms
Single-sensor (smoke or heat) smoke alarms powered by 9v batteries, & a plug-in CO alarm	Dual-sensor (smoke & heat) smoke alarms with sealed 10-year lithium-ion batteries, and a basic combination smoke/CO Alarm	Dual-sensor (smoke & heat) combination smoke/CO alarms with sealed 10-year lithium-ion batteries.
Benefits	Benefits	Benefits
✓ Basic property and life safety protection; however, a single-sensor alarm may not detect all types of fire/smoke situations in a timely manner ✓ Short-term cost is lowest; however, the long-term cost is the highest ✓ CO alarm can be plugged into electrical outlets; no mounting of CO alarm required	✓ Better property and life safety protection ✓ Lowest long-term cost ✓ Dual-sensor smoke alarms can detect both smoke and heat more quickly ✓ 10- year batteries in MOST of the apartment's alarms reduces the cost of replacing batteries ✓ 10- year batteries in MOST of the apartment's alarms reduces maintenance needs ✓ Reduced maintenance to install and test a combination smoke/CO alarm ✓ Lithium ion-powered alarms are sealed, preventing tampering with the alarm, or removing the battery for any reason; this better ensures that property and lives are protected 24/7	✓ Best property and life safety protection ✓ Lower long-term cost vs. basic alarms ✓ Dual-sensor smoke alarms can detect both smoke and heat more quickly ✓ 10- year batteries in ALL the alarms eliminates the cost of replacing batteries ✓ 10- year batteries in ALL the alarms greatly reduces maintenance needs ✓ Reduced maintenance to install and test a combination smoke/CO alarm ✓ Lithium ion-powered alarms are sealed, preventing tampering with the alarm, or removing the battery for any reason; this better ensures that property and lives are protected 24/7
Ongoing Maintenance	Ongoing Maintenance	Ongoing Maintenance
Moderate	Low to Moderate	Low
Estimated 10-yr Cost Of materials for a 100-unit, 200-bedroom facility = \$12,264 + tax (\$1,226/yr.)	Estimated 10-year Cost Of materials for a 100-unit, 200-bedroom facility = \$8,516 + tax (\$851/yr.)	Estimated 10-year Cost Of materials for a 100-unit, 200-bedroom facility = \$11,850 + tax (\$1,185/yr.)
Includes per apartment unit: 3 basic (single sensor) SA's 1 plug-in CO alarm	Includes per apartment unit: 2 dual sensor SA's with lithium-ion batteries 1 basic combination smoke/CO alarm	Includes per apartment unit: 3 dual-sensor combination smoke/CO alarms with 10-year <u>lithium ion</u> batteries



COST ESTIMATE CALCULATOR FOR SMOKE AND CARBON MONOXIDE ALARMS

Good Plan

Basic Single-sensor smoke alarm (smore or heat), requires 9v battery......\$5/each
Basic plug-in CO alarm, requires 9v battery for back-up.....\$27/each
9v batteries....\$175/156-pack (\$1.12 ea)

1-bedroom apartment = \$38.72 year 1 \$6.72 each year for the next 8 years
2-bedroom apartment = \$50.96 year 1 \$8.96 each year for the next 8 years
3-bedroom apartment = \$58.20 year 1 \$11.20 each year for the next 8 years

Better Plan

1-bedroom apartment = \$47.24 year 1 \$2.24 each year for the next 8 years 2-bedroom apartment = \$67.42 year 1 \$2.24 each year for the next 8 years 3-bedroom apartment = \$87.24 year 1 \$2.24 each year for the next 8 years

Best Plan

Low Maintenance, combination dual-sensor smoke & CO alarm (smoke and heat), Includes sealed 10-year lithium-ion battery...............\$79/2-pack (\$39.50 ea)

1-bedroom apartment = \$79 year 1 \$0 years 2-9 2-bedroom apartment = \$118.50 year 1 \$0 years 2-9 3-bedroom apartment = \$158 year 1 \$0 years 2-9

Additional Options

Dual-sensor smoke alarms (smoke and heat), requires 9v battery......\$23/each

* Hardwired ionization smoke alarm (heat only), no back-up......\$12/each

* Hardwired dual-sensor combination smoke & CO alarm, requires 9v battery for backup...\$129/3-pack (\$43 ea)

*Ideally your facility was built with the smoke alarms hardwired together in each apartment unit. This ensures that if one alarm is activated, the will all sound in that apartment. However, many of the apartment facilities in our fire district were built before this life-saving technology was available.



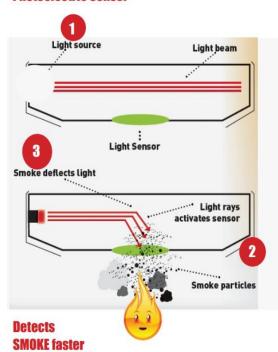
SMOKE ALARM TESTING AND BATTERY REPLACEMENT SCHEDULE

- Alarm Testing: Monthly
- Battery Replacement:
 - Every six months (even with hardwired alarms)
 - When the unit begins to "chrip"
- Unit Replacement: At most 10 years or per the manufacturer specifications

SMOKE ALARM TYPES

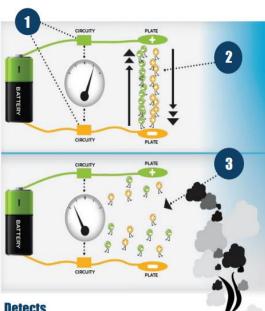
While single-sensor smoke alarms are far better than not having an alarm at all, these may not detect all types of fires as quickly as possible. Dual sensor smoke alarms will better protect your property and residents because they include two kinds of fire detection technologies; one that detects smoldering fires faster (photoelectric), and the other detects flaming fires faster (ionization).

Photoelectric Sensor



- ① Inside the smoke detector, there is an LED light that sends a beam of light (similar to a laser pointer) in a straight line across the chamber. In a separate compartment inside the chamber, there is a photosensor that detects light.
- 2 As smoke enters the detector, the smoke particles interrupt the light beam, scattering it in many directions. Some of the LED light scatters toward the light sensor. When light beams hit the sensor, the alarm goes off.
- When the 9V battery in the smoke detector gets low in your smoke detector, it should automatically activate a quick chirping sound. This chirping does not sound like the loud, long beep the detector makes when it's tested and when there's a fire. If the detector chirps, it's time to replace the 9V battery!

Ionization Sensor



Detects HEAT and FLAMES faster

- Inside the smoke detector, there are two tiny metal plates called electrodes that are connected to the battery. This is called a circuit.
- There is also a substance called Americium-241, which converts air molecules into positive and negative ions. Because opposites attract, the negative ions move toward the positive plate, and the positive ions move toward the negative plate.

 This movement creates a complete circuit (or path) of electricity.
- 3 As smoke enters the smoke detector, the ions bond with the smoke, breaking the path of electricity. When the flow of electricity is reduced, the alarm goes off.



VALET TRASH SERVICES

Valet trash services collect a limited amount of occupant-generated combustible trash or recyclable materials from dwelling units, where trash is left outside the dwelling units for scheduled pickup.

This service is in violation of the adopted fire code. The 2018 International Fire Code, Section 315.3.2 Means of Egress states that "combustible materials shall not be stored in exits or enclosures for stairways and ramps" and Section 1031.2 Reliability states that "required exit access, exits and exit discharges shall be continuously maintained free from obstructions or impediments to full instant use in the case of fire or other emergency where the building area served by the means of egress is occupied. An exit or exit passageway shall not be used for any purpose that interferes with a means of egress".

Effective immediately, any instance of valet trash services within the AFPD jurisdiction is in violation of the adopted fire code and shall be eliminated from the site. If still in use, the property will receive an Order to Comply requiring the immediate removal of the service from the community it serves.

FIRE PROTECTION SYSTEMS

For the apartment buildings that have fire alarm systems and fire sprinkler systems, they need to be inspected, tested, and maintained, at minimum, on an annual basis. The purpose of those inspections is to ensure that the system(s) are in an operational state so that they do what they are intended to do in the event of an emergency. These inspections are not done by the AFPD, rather they are by fire protection contractors that specialize in the inspection, testing, and maintenance of fire alarm and fire sprinkler systems. Those reports must be submitted to the AFPD for review through The Compliance Engine at https://www.thecomplianceengine.com/.

FIRE EXTINGUISHER REQUIREMENTS

Fire extinguishers are required to be provided in all apartment buildings, but you as the property management have options on where to have them installed.

- Option 1 is to provide commercial fire extinguishers in breezeways, corridors, and common areas throught the building(s).
- Option 2 is to provide residential fire extinguishers in each apartment unit. When this option is chosen, fire extinguishers do not need to be installed as indicated in Option 1.

Both options listed above require that the fire extinguishers be inspected on an annual basis as well. It might be easier to manage Option 1, because there will be fewer fire extinguishers that need to be inspected or replaced annually.



Commercial (Rechargable) Fire Extinguishers

- For the purpose of this guide, a commercial fire extinguisher is defined as a rechargeable unit provided with a minimum rating of 2A:10BC.
- They shall be visible, accessible, and located so that no point in the building is more than 75 feet from a fire extinguisher.
- They shall be mounted on the wall or installed in an approved cabinet. The top of the fire extinguisher shall be no more than 60 inches above the finished floor level.
- They must be provided with a current inspection tag installed by a trained fire protection contractor.
- They must be serviced or replaced if the fire extinguisher has been discharged, if the tamper seal is missing, or
 if the pull pin is missing.

Residential (Disposable) Fire Extinguishers

- For the purposes of this guide, a residential fire extinguisher is defined as a non-rechargable unit provided with a minimum rating of 1A:10BC.
- They shall be installed in residential units in approved locations such as under the kitchen sink.
- They will not require an inspection tag.
- They must be visually inspected on an annual basis by an employee of the complex.
- They must be replaced if the fire extinguisher has been discharged, the tamper seal is missing, or the pull pin
 is missing.

COMPLIANCE INSPECTION PROCESS

In the AFPD, our goal is always to support you in the protecting of your property and residents from the threat of fire. We want your inspection experience to be as positive, predictable, and successful as possible. We aim to minimize visits between inspections, and overall provide an educational experience on what the fire code requires for your complex. The following is an overview of the fire inspection process for apartments:

- 1. NOTICE OF INSPECTION: One of our inspectors will contact your office or arrive on-site to schedule a time for your official inspection to take place. Often, the inspection takes place at the time we arrive to schedule an inspection. Your facility may not receive an inspection annually, based on the risk associated with your building(s) it may be annually, biennially, or triennially. The AFPD will not inspect individual apartment units.
- 2. INSPECTION: The inspection will take roughly 1-4 hours depending on the size of your facility, how well prepared you are and how many violations are identified. If our inspectors are called out to an actual fire or other emergency during your inspection, we may need to return on a different day to finish the inspection. You can use the provided checklist at the end of this guide for a better understanding of what we look for during our inspection.
- 3. VIOLATION CORRECTIONS: We will work closely with you over the next few days and weeks until the violations are sufficiently addressed, if any are identified during the inspection. This may entail follow-up visits to your property.



EVACUATION AND FIRE SAFETY PLANS

All apartment facilities in the Arvada Fire Protection District greatly benefit from having an Emergency Evacuation Plan for their residents in the case of an emergency, which is: **COMMUNICATED IN ADVANCE TO RESIDENTS, TRAINED AT LEAST SEMI-ANNUALLY BY STAFF AND DRILLED ANNUALLY BY EVERYONE AT YOUR FACILITY.** Your facility also benefits from developing and sharing a Fire Safety Plan that further details the fire hazards and resources on your property. For additional information the following link provides additional information on Fire Safety and Evacuation Planning http://bit.ly/evacplanning.

Among residential facilities, we require those plans and drills for (a) hotels, and (b) multi-story residential facilities whose occupants are primarily seniors aged 55 and up. Our Fire Marshal's Office will work directly with hotels and multi-story senior facilities to help you design you plans and support your annual drills. Other apartment facilities are strongly urged to likewise have these plans and drills, which are proven to save lives while also making your residents feel truly valued by management! Here are the key components (detailed further in IFC 404):

Evacuation Plans

Information to be distributed by the property owner/manager to **ALL RESIDENTS** (as well as employees) and reviewed with them when they first move in AND again annually.

- EMERGENCY EGRESS OR ESCAPE ROUTES, and whether evacuation of the building is to be complete or only by selected floors/areas.
- MEANS OF NOTIFYING OCCUPANTS OF A FIRE OR EMERGENCY, both preferred and alternative.
- ASSISTED RESCUE PROCEDURES for occupants unable to use the general means of emergency egress unassisted.
- EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM alert tone description and preprogrammed voice messages, where provided.
- Additional Evacuation Plan information shall be distributed by the property owner/manager to ALL EMPLOYEES upon hiring and trained with them at least semi-annually.
- MEANS AND PROCEDURE FOR REPORTING FIRE/EMERGENCY TO THE FIRE DEPARTMENT, both preferred and alternative, including false alarms.
- CRITICAL EQUIPMENT PROCEDURE for employees who must remain to operate this equipment before evacuating
- PROCEDURE TO ACCOUNT FOR OCCUPANTS/EMPLOYEES after the evacuation is complete.
- EMPLOYEES RESPONSIBLE FOR RESCUE OR EMERGENCY MEDICAL AID identified and assigned.
- CONTACT INFORMATION FOR EMPLOYEES who can be contacted for further information or explanation of duties under the Plan.

FIRE SAFETY PLANS

Information to be distributed by the property owner/manager to ALL RESIDENTS (as well as employees) and reviewed with them when they first move in and annually:

FLOOR PLANS including exits, primary and secondary evacuation routes, assembly/meeting points for
occupants, accessible egress routes, areas of refuge, exterior areas for assisted rescue, manual fire alarm
boxes, portable fire extinguishers, occupant-use hose stations, fire alarm annunciators and controls



- SITE PLANS including: assembly points, locations of fire hydrants, normal routes of Fire Department vehicle
 access
- LIFE SAFETY STRATEGY AND PROCEDURES for notifying, relocating, or evacuating occupants-including occupants who need assistance

Additional information to be distributed by the property owner/manager to ALL EMPLOYEES upon hiring and reviewed with them at least semi-annually:

- LIST OF MAJOR FIRE HAZARDS associated with the normal use and occupancy of the premises, including maintenance and housekeeping.
- EMPLOYEE RESPONSIBLE FOR MAINTAINING FIRE-CONTROL/PREVENTION SYSTEMS AND EQUIPMENT identified and assigned
- EMPLOYEES RESPONSIBLE FOR MAINTAINING AND CONTROLLING FUEL HAZARDS identified and assigned.

Fire and Emergency Drills should replicate as closely as possible the activities and needs expected in an actual emergency. Beforehand, review the plan and responsibilities with all employees and encourage them to discuss any concerns or questions they have about fire response and evacuation procedures. Afterward, debrief with the participating staff to assess the strengths and weaknesses of the drill. We recommend that you keep a record of the drill including the following at a minimum:

- Name and position of the person conducting the drill
- Staff members on duty and participating
- Date and start time of the drill
- Time required to complete the drill
- Notification method(s) used
- Number of occupants evacuated
- Special conditions simulated



FIRE SAFETY SURVEY FOR APARTMENT COMPLEXES

LEASING OFFICE	YES	NO	N/A
Office personnel have produced required inspection documentation (Fire alarm			
systems, Fire sprinkler systems, Elevator inspection).			
Building address provided on the building or monument sign.			
The fire alarm control panel has power and there is no trouble, supervisory, or			
alarm conditions indicated on the panel.			
The fire alarm control panel is monitored off-site, and the monitoring service			
has the correct address for the complex.			
A smoke detector is installed near the fire alarm control panel.			
Exit signs are illuminated and battery backup is operational.			
Emergency lighting units are operational and have battery backup.			
Panic hardware is only lock/latch installed on secondary exit doors.			
Portable extinguishers are provided. Extinguishers are mounted in visible and			
accessible locations. Extinguishers are charged, tamper seals and pull-pins are			
intact. Extinguishers have a current inspection tag installed by a licensed fire protection contractor (inspected annually).			
Fire sprinkler rooms are provided with required signage.			
FDC's are provided with required signage.			
Main gas shutoffs are provided with required signage.			
Main electrical disconnects are provided with required signage.			
Main electrical disconnects are provided with required signage.			



POOL AREA AND MAINTENANCE SHOP	YES	NO	N/A
Emergency pool phone works properly and the dispatcher has the correct address. Signage is provided to identify emergency phone.			
Storage areas for pool chemicals are identified by NFPA 704 placard			
All combustibles are stored at least 3' away from any gas appliances (Water heater, furnace, etc.)			
Compressed gas containers (CO2, helium, etc.) shall be secured to prevent from falling.			
No more than 10 gallons of flammable liquid is stored in approved safety cans.			
SITE/COMPLEX	YES	NO	N/A
The address of the complex is posted at all entrances and is clearly visible from the public street.			
Electronic access gates are operational and KNOX switches are working properly. All gates are open fully upon activation of the Knox switch and remain in the open position until the Knox switch is reset.			
Manual access gates are provided with a manual release and the release is operational			
Fire lanes are clearly marked and legible and clear of obstructions.			
A minimum vertical clearance of 13 feet 6 inches is maintained for the entire length and width of the fire lane. (tree limbs and power lines)			
The steamer connection for all hydrants is a minimum of 18 inches above adjacent grade level (measured to center of opening)			
A minimum of 3-foot clearance is maintained around the circumference of each fire hydrant. This area is kept clear of all landscaping which will obstruct the visibility of, or access to, the fire hydrant.			



Building numbers are visible from the access drive.			
EXTERIOR SURVEY- RESIDENTIAL	YES	NO	N/A
BUILDINGS			
Building address numbers provided on building or monument sign.			
Knox box intact with current keys.			
Riser rooms are provided with required signage.			
Fire department connections are provided with required signage.			
Fire department connections are provided with protective caps.			
A minimum of 3-foot clearance is maintained on all sides of fire department connections. This area is kept clear of all landscaping which will obstruct the visibility of, or access to, the FDC.			
Main gas shutoffs are provided with required signage.			
Main electrical disconnects are provided with required signage.			
Electrical panels are provided, and covers are enclosed.			
All circuit breakers are labeled to indicate which portion of the building they service. There is no visible damage to breakers.			
All electrical outlets and junction boxes are provided with cover plates.			
A minimum clearance of 30 inches is maintained around electrical panels and meters. This area is kept clear of landscaping and storage.			
Building exteriors are free of weeds, debris, and combustible storage.			
Dumpsters are a minimum of 5 feet from combustible walls, windows and building overhangs.			



The area around each building is maintained free of improperly discarded smoking material.			
RESIDENTIAL BUILDING FIRE PROTECTION FEATURES	YES	NO	N/A
The fire alarm control panel has power and there is no trouble, supervisory, or alarm conditions indicated on the panel.			
Sprinkler riser gauges indicate there is pressure on the system.			
All valves are currently in the open position so that the system, if activated would work properly.			
All valves and controls are labeled correctly. (Main Drain, Main Control, etc.)			
The fire alarm system has been inspected and serviced (tag attached) within the past year by a licensed fire alarm contractor.			
The fire sprinkler system has been inspected and serviced (tag attached) within the past year by a licensed fire protection contractor. The fire sprinkler system is free of yellow and/or red tags.			
The sprinkler riser room is free of any storage, debris, or trash.			
SURVEY OF COMMON AREAS IN RESIDENTIAL BLDNGS	YES	NO	N/A
Attic draft stops are intact. All penetrations in draft stops have been firestopped.			
Access panels in draft stops are self-closing and provided with automatic latches.			
Electrical boxes and switches are provided with cover plates.			
Exit signs are illuminated and battery backup is operational.			
Emergency lighting units are operational.			



Breezeway walls and ceilings are intact. All penetrations in walls and ceilings			
have been sealed.			
If extinguisher cabinets are provided in common areas: all cabinets contain an			
extinguisher, extinguishers are charged, tamper seals and pull-pins are intact.			
Standpipe system has been inspected, tested and maintained.			
Standpipe hose connections are provided with protective caps.			
Fire sprinklers, fire alarm horns and/or fire alarm strobes are free of any visible			
damage.			
There are no obstructions or storage in breezeways. There are no obstructions			
or storage in or under exit stairs.			
Exit stairs, guardrails and handrails are intact and structurally sound.			
The electrical, equipment and mechanical rooms are free of storage.			
ELEVATORS	YES	NO	N/A
Elevator is operational.			
Elevator is operational.			
Elevator has been tested and inspected within the past year by a certified			
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Elevator has been tested and inspected within the past year by a certified inspector.			
Elevator has been tested and inspected within the past year by a certified inspector. Elevator key provided by the complex works with this elevator (firefighter service key).			
Elevator has been tested and inspected within the past year by a certified inspector. Elevator key provided by the complex works with this elevator (firefighter			



INTERIOR SURVEY- RESIDENTIAL UNITS	YES	NO	N/A
*AFPD will not inspect individual residential units – provide this resident to verify.	s sheet t	o each	
Unit numbers are posted at unit entry doors.			
Unit doors are self-closing and self-latching.			
Smoke and carbon monoxide alarms are installed and operational.			
Sprinklers are free of any obstructions and a minimum clearance of 18 inches is maintained below all sprinkler heads. (Closets and utility rooms are primary concerns)			
Fire sprinklers, fire alarm horns and/or fire alarm strobes are free of any visual damage.			
If portable extinguishers are not installed in common areas: A 1A-10BC minimum-rated fire extinguisher has been provided. The extinguisher is charged, the tamper seal and pull-pin are intact.			
Dryer vents are free of lint accumulations. Areas behind washers and dryers are kept clear of lint and other combustibles.			
All combustibles are stored at least 3 feet away from appliances (water heater, furnace, etc.)			
Electrical outlets, switches and junction boxes have cover plates.			
Extension cords are not being used for permanent wiring. Extension cords are plugged directly into outlets or power strips and do not pass under rugs or through walls.			



Power strips are plugged directly into outlets.		
Patios and balconies are free of solid fuel cooking and heating devices.		
Apartment units, patios and balconies are free of combustible and flammable liquids.		